

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Claim Amendments

By way of the amendment instructions above, claim 1 has been revised so as to include therein the substance of prior claim 23. As such claim 23 has been cancelled as redundant. In addition, claim 20 has been amended so as to clarify that the "reference formulation" is one which comprises similar amounts of components a), b), f) and g), a pigment with an oil absorption number >32g oil/100g pigment, and a pseudoplastic thickener. Support for such a revision can be found in the originally filed specification at page 3, lines 17-30. In this regard, the Borchigel™ L75N is a pseudoplastic thickener as noted on page 30, lines 21-22.

Therefore, following entry of the present amendment claims 1-22 and 24-26 will remain pending herein for which favorable reconsideration and allowance are requested.

2. Response to 35 USC §112 Issues

The amendments to claims 20 and 24 are believed to address the issues raised under 35 USC §112, second paragraph.

Regarding claim 1, applicants note that Newtonian thickeners are defined at page 21, line 20 as those thickeners that have viscosity that is *independent* of the shear rate. Thixotropic thickeners are defined on page 21 lines 24-28 as being "shear thinning" – i.e., the thixotropic thickeners exhibit a reduced viscosity as shear increases, however when the shear stress is removed, the initial viscosity is only restored over a period of time. Finally on page 22, lines 14-22, the behavior of Newtonian-like thickeners are described as allowing for a small change in viscosity between a shear of

10s⁻¹ and 1000s⁻¹. As such, Newtonian-like thickeners are those that allow for a relatively small amount of shear thinning.

Thus, by way the amendment to claim 1 whereby components d) and/or e) are present in an amount of 0.1 to 10 wt.% and impart a shear ratio to the composition which is in the range of 1 to 20 at a shear rate of 10s⁻¹ and 1000s⁻¹ clearly defines to the skilled person the Newtonian-like and Thixotropic thickeners that may be employed in the practice of the claimed invention.

Withdrawal of the rejection advanced under 35 USC §112, second paragraph is therefore in order.

3. Response to 35 USC §103(a) Issues

Prior claims 1-26 attracted a rejection under 35 USC §103(a) as allegedly being "obvious" and hence unpatentable over WO 02/33013 (WO '013) in view of WO 97/12945 (WO '945). Applicants suggest that neither publication is an appropriate reference against the claims pending herein.

The present invention is concerned with an aqueous coating composition having an improved open time which includes:

- c) a pigment with an oil absorption number ≤25g oil/100g pigment,
- d) 0 to 10 wt% of a Newtonian-like thickener, and
- e) 0 to 10 wt% of an thixotropic thickener wherein
- d) + e) = 0.1 to 10 wt% and impart a shear ratio to the composition which is in the range of from 1 to 20 at a shear rate of 10 s⁻¹ and 1000 s⁻¹,

The definition of the claimed invention with respect to d) and e) means of course that the presence of either or both of the Newtonian-like thickener and the thixotropic thickener must necessarily be present in the composition.

WO '013 discloses an aqueous coating composition comprising a crosslinkable water dispersible oligomer and a dispersed polymer which complies with Equation 1. The compositions of WO '013 are formulated in Examples 1 to 9 with a TiO₂ based pigment and a urethane (pseudoplastic) thickener (Borchigel™ L75N) (page 44, line 6, lines 14 to 14). No details regarding the oil-absorption of TiO₂ are disclosed in WO '013.

The thickener used in WO '013 is, as defined in the present invention, a pseudoplastic thickener (page 30, line 21) and is only used in the comparative examples of the present invention (Examples IA, IB, Table 1; Comparative Example 2, Table 3; Comparative Example 3, Table 5).

Therefore WO '013 does not disclose an aqueous coating composition with a pigment having an oil absorption number $\leq 25\text{g oil}/100\text{g pigment}$ and 0.1 to 10 wt% of a Newtonian-like thickener and/or a thixotropic thickener which impart a shear ratio to the composition which is in the range of from 1 to 20 at a shear rate of 10 s^{-1} and 1000 s^{-1} .

WO '945 discloses the use of aqueous thixotropes (fumed silica) with waterborne resins. What is clear from WO '945 is that it is to an aqueous dispersion of hydrophilic fumed silica which provides thixotropy to waterborne systems (page 3, line 15). That is, the fumed silica itself is *not* disclosed as showing any viscosity and thus not any Newtonian-like, thixotropic or pseudoplastic properties. More simply stated, the fumed silica (page 4, line 7) is an aggregate made up of primary spherical particles. It is not until the fumed silica is *combined* with the resin in an aqueous system that it can provide rheology control and thixotropy, i.e. only the *final* composition shows a certain rheological behavior.

Thus the fumed silica of WO '945 is *not* a Newtonian-like thickener or a thixotropic thickener as required by components d) and e) of pending claim 1 herein.

Applicants further note that Example 9 in WO '945 utilizes a commercial thickening agent (page 15, line 20), namely Borchigel™ L75N which, as described in

the present specification (page 30, line 21) is a pseudoplastic thickener (shear thinning). Borchigel™ L75NTM is not a Newtonian-like or a thixotropic thickener, and therefore Example 9 does not teach the skilled person to use 0.1 to 10 wt% of a Newtonian-like and or thixotropic thickener. In any event, the use of Borchigel™ L75N in the present application is in connection with the comparative examples, so it is not a thickener that is embraced by the scope of the presently pending claims. Moreover, Example IX on page 15 and Fig. 6 of WO '945 disclose that the use of Borchigel™ L75N is detrimental.

Since neither WO '013 nor WO '945 disclose or suggest employing a Newtonian-like thickener and/or a thixotropic thickener in an amount of 0.1 to 10 wt % to impart a shear ratio to the composition which is in the range of from 1 to 20 at a shear rate of 10 s⁻¹ and 1000 s⁻¹, their combination cannot possibly render the presently claimed invention "obvious" under 35 USC §103(a). Withdrawal of such a rejection is therefore in order.

4. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____ /Bryan H. Davidson/
Bryan H. Davidson
Reg. No. 30,251

BHD:dlb
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100